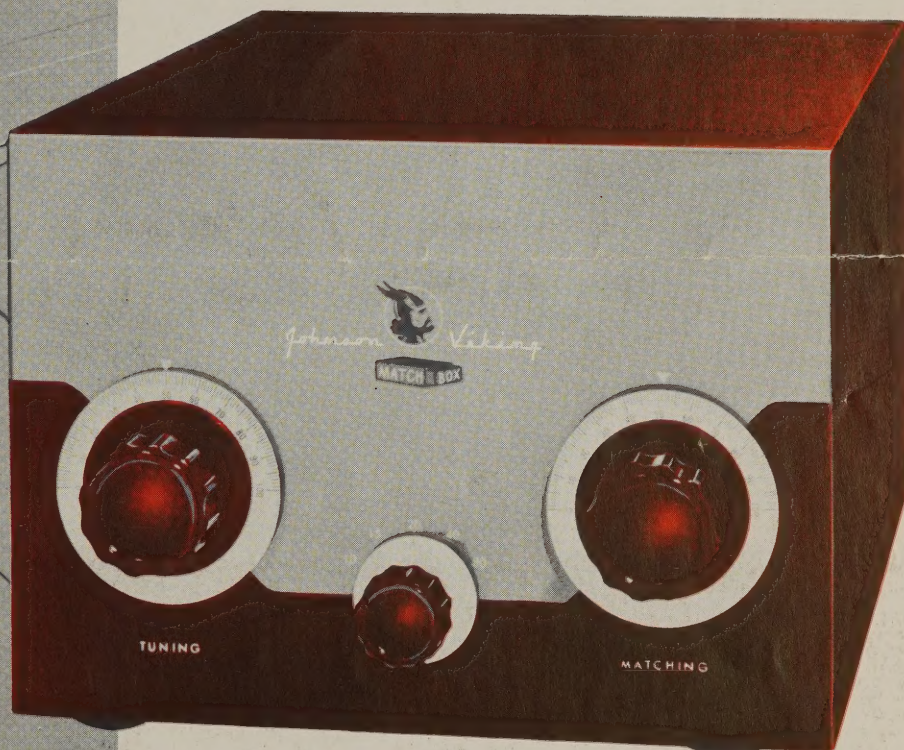


*Johnson*

# MATCH BOX

**A FULLY ENGINEERED  
ANTENNA COUPLING SYSTEM**



**BAND SWITCHING 80, 40, 20, 15, 11 AND 10 METERS  
SHIELDED CABINET... ANTENNA CHANGEOVER RELAY  
MATCHES VIRTUALLY ANY LINE**

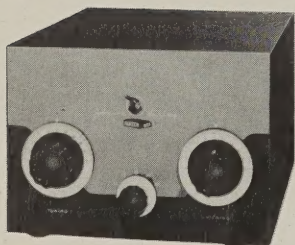
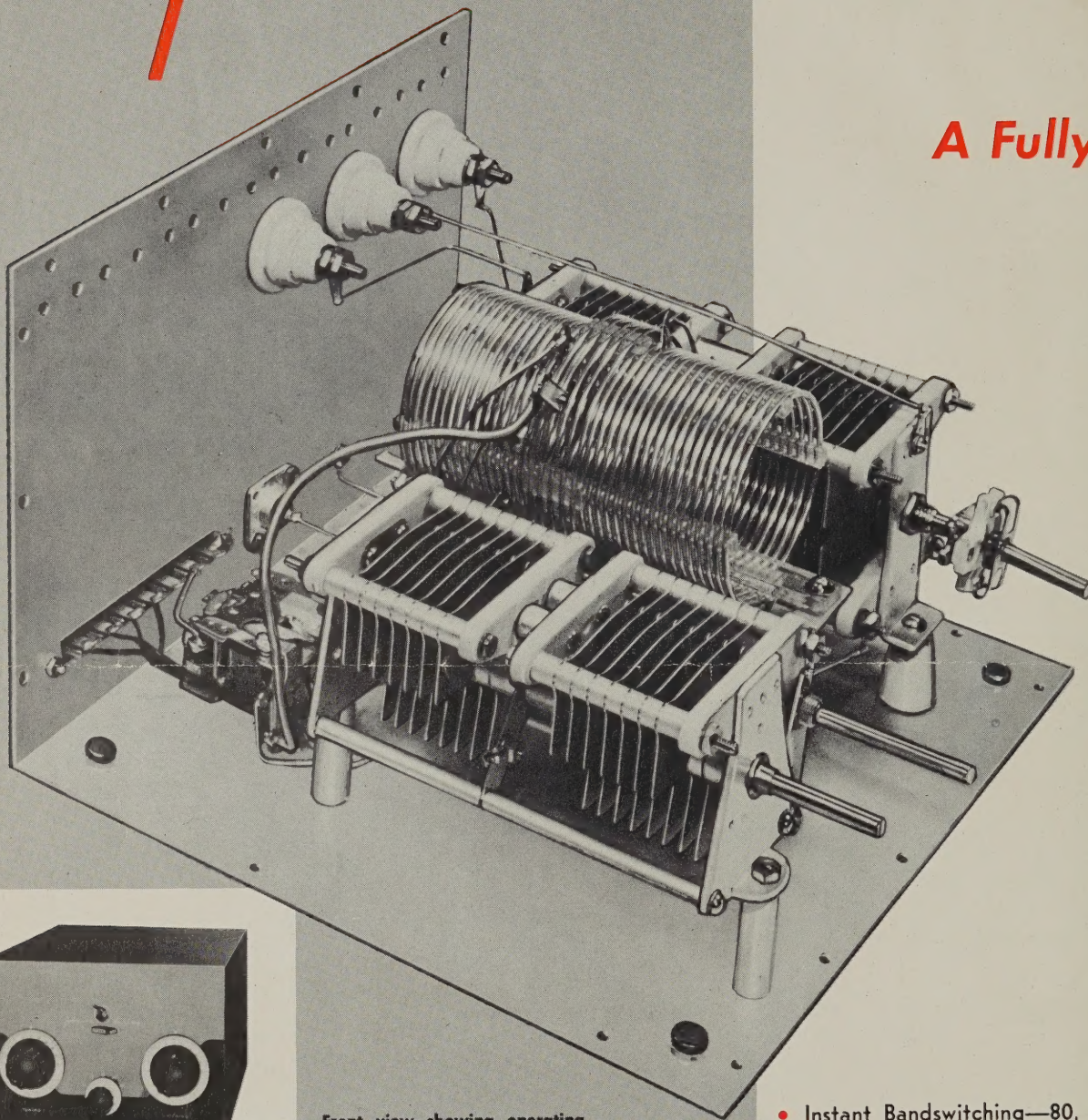


**E. F. JOHNSON CO., WASECA, MINNESOTA**

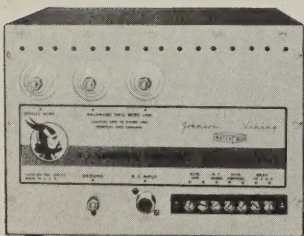


# Johnson MATCH

*A Fully Engineer*



Front view showing operating controls. Dials are calibrated 0 to 100, bandswitch positions provided for 80, 40, 20, 15, 11, and 10 meter amateur bands.



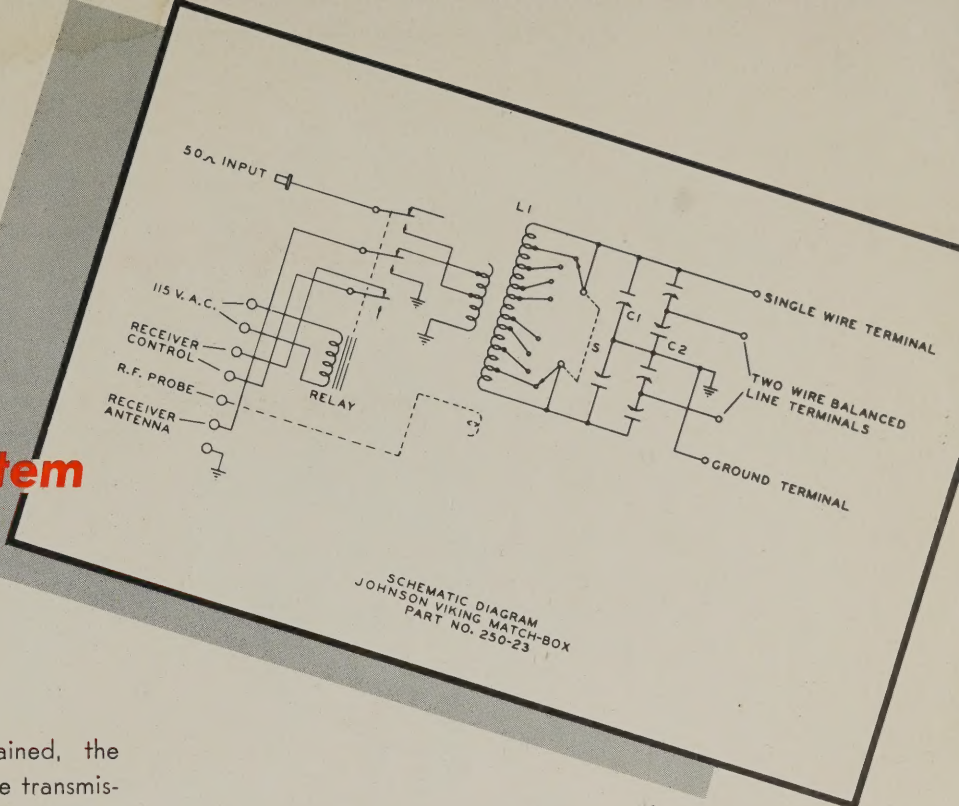
Rear view showing the coaxial RF input connector, antenna connectors for balanced or unbalanced transmission lines, and terminal strip. Terminal strip connections for the following: Receiver input; RF probe for phone - CW monitor; Receiver muting; 115 volt antenna relay control.

- Instant Bandswitching—80, 40, 20, 15, 11, and 10 meters
- Front panel tuning and loading—Antenna tapping eliminated
- Maximum power input of 250 watts RF.
- Impedances matched from 25 to 3000 ohms unbalanced lines—25 to 1250 ohms for balanced lines
- Tunes out large amounts of reactance
- Nominal 52 ohms input impedance throughout 3.5 to 30.0 megacycle range
- Self-contained antenna change-over relay
- Receiver matching and muting for peak receiver performance
- Provision for RF monitoring
- Attractive, fully shielded cabinet



# BOX

## Antenna Coupling System



**B**andswitching and completely self-contained, the JOHNSON "Matchbox" performs all the transmission line matching and switching functions required in a medium powered amateur station. Revolutionary circuit design does away with the annoying use of "plug-in" coils, and completely eliminates "load-tapping," necessary in other antenna couplers.

Tuning and loading is easily accomplished with two convenient front panel controls. When changing bands, merely switch to the correct band position, tune, and load. Tuning is sufficiently broad so that a single setting of the "Matchbox" will cover a large segment of an amateur band, and in some cases, an entire band.

Though designed as a companion unit to the Viking I and II, the "Matchbox" can be used with any transmitter having 250 watts maximum power input, and a PA plate voltage not exceeding 1000 volts. The "Matchbox" circuit consists of a tuning capacitor, inductor and link, and a special dual differential balancing capacitor for dividing impedances.

Designed to match a 52 ohm coaxial link line to reactive and non-reactive loads ranging from 25 to 1250 ohms for balanced lines, and 25 to 3000 ohms for unbalanced lines, the "Matchbox" will match virtually any antenna throughout the 3.5 to 30.0 megacycle range. The link line operates without standing waves, providing a convenient point for the installation of a JOHNSON 250-20 low pass RF filter for improved harmonic suppression.

Receiver input impedance matching is another outstanding feature. A self-contained change-over relay switches the antenna from receiver to transmitter, grounding the receiver antenna terminals in the "trans-

mit" position, thus preventing damage to front end components. In addition to antenna change-over, the relay also mutes the receiver during transmission. An adjustable link is provided (requiring only initial adjustment) so that typical commercial receiver input impedances may be matched, considerably improving receiver performance.

All "Matchbox" connections are conveniently located at the rear of the unit. An extra terminal is provided for the attachment of an RF probe, or the connection of a phone-CW monitor such as the JOHNSON "Signal Sentry."



Attractively finished in maroon and grey to match the JOHNSON Viking II, the "Matchbox" cabinet is shielded to reduce harmonic radiation. Rubber mounting feet protect the operating table.

Supplied as an assembled, wired, and pre-tested unit—complete operating instructions included. Dimensions: 9<sup>7</sup>/<sub>8</sub>" wide, 10<sup>1</sup>/<sub>2</sub>" deep, 7" high. Weight, approximately 6 pounds. RF input through SO-239 coaxial connector—RF output, JOHNSON type 135-51 Steatite thru-panel insulators.

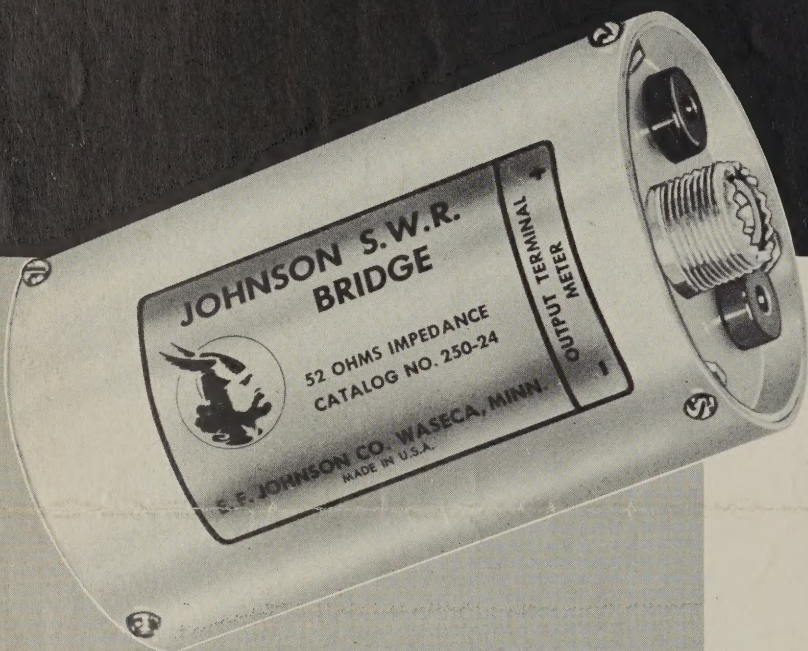
**\$49<sup>85</sup>**  
AMATEUR NET

CATALOG NUMBER 250-23



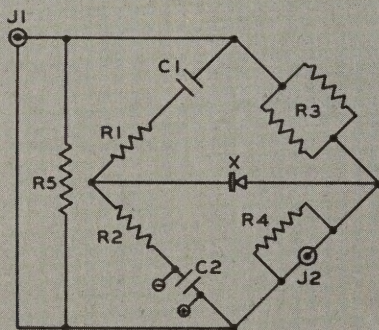
# JOHNSON SWR BRIDGE

**MORE RADIATED POWER . . .  
LESS TELEVISION INTERFERENCE**



## CIRCUIT:

The JOHNSON SWR Bridge consists of the circuit shown below. The ratio arms of the bridge are  $C_1R_1$ ,  $C_2R_2$ ,  $R_3$  and the unknown impedance paralleled by  $R_4$ . The elements  $R_1$ ,  $R_2$ ,  $C_1$  and  $C_2$  are selected and matched resistors and capacitors. The two resistors of  $R_3$  are selected units and are used as a standard for comparison with the unknown impedance.



Designed primarily to measure the standing wave ratio on 52 ohm coaxial transmission lines, the JOHNSON SWR Bridge helps obtain maximum transmission line and antenna performance. It also insures the most effective use of a low pass filter and antenna coupler for the ultimate in harmonic (TVI) suppression. With slight modification or additional equipment, the SWR Bridge can also be used to measure the standing wave ratio on 70 ohm coaxial lines and open wire lines—or the radiation resistance of unbalanced antennas and the RF resistance of non-inductive resistors. Essential for the proper adjustment of an antenna coupler, the SWR Bridge is not critical with respect to frequency and will give accurate measurements up to frequencies of 150 megacycles. Impedance of 52 ohms can be easily changed to 70 ohms or other desired value. Equipped with SO-239 connectors and color coded phone tip jacks for meter connection.

CATALOG NUMBER 250-24

**\$975**

AMATEUR NET

**E. F. JOHNSON COMPANY**

WASECA

MINNESOTA